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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/633,523

08/05/2003

Takeshi Okada

03500.015395.1

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01/11/2007

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EXAMINER

OLSEN, ALLAN W

ART UNIT

PAPER NUMBER

1763

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/633,523

Applicant(s)

OKADA ET AL.

Examiner

Allan Olsen

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,9 and 11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,9 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. 09/867,492.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 22, 2006 has been entered.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 9 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent Application US 2004/0201048 of Seki et al. (hereinafter, Seki) in view of US Patent 5,470,760 issued to Nakai and further in view of the Fonash et al. US Patent Application Publication 2002/0187312 (hereinafter, Fonash).

Regarding claim 1, Seki teaches a method of forming an optical device wherein pixel demarcation is accomplished by forming resinous partition walls on a transparent

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substrate (see: [0154]). Seki teaches that the substrate having partition walls thereon, is dry etched with an oxygen plasma and then the substrate is subjected to a fluorine plasma treatment (see: [0055]). Seki teaches using an ink jet to apply ink to the pixels (see, [0002]). Seki teaches the partitioning members may be formed using a black pigment ([0154]). Regarding the claimed contact angles, Seki teaches achieving contact angles that coincide with applicant's claimed angles (see, [0050]). Regarding the etchant composition, Seki teaches using one of CF₄, SF₆ and CHF₃ as the source of fluorine for the fluorine plasma treatment (see, [0050]). In addition, Seki teaches using a mixture of O₂ and one of CF₄, SF₆ and CHF₃ for the fluorine plasma treatment wherein the O₂ comprises 25 % of the gas mixture (see: figure 9 and [0178]).

Regarding claim 11, Seki teaches using ink comprising a colored resin and water and an organic solvent (see: abstract and [0145] - [0160]).

Regarding claim 9, Seki teaches providing a black matrix on a transparent substrate ([0154]).

Seki does not teach using carbon black in the resinous partitioning members.

Nakai teaches adding carbon black to the resinous partition walls of an imaging device.

Fonash teaches that carbon black/polymer composites have contact angles greater than 100°.

It would have been obvious to one skilled in the art to incorporate carbon black into the resinous partition walls of Seki because Seki teaches adding a black pigment while Nakai teaches that carbon black may be used as a black pigment in resinous

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partition walls and Fonash teaches that carbon black/polymer composites provide contact angles on the magnitude desired by Seki.

Seki does not explicitly teach applicant's claimed results pertaining to the coarseness of the partition walls.

It would be obvious to one skilled in the art to carry out Seki's method according to the teachings of Seki. Because Seki and applicant use the same resinous material to form the partition walls and because Seki and applicant treat the resinous partition walls with the same plasma treatment, the skilled artisan is expected to achieve the same results that have been obtained by applicant.

Response to Arguments

Applicant's arguments filed November 22, 2006 have been fully considered but they are not persuasive.

Applicant argues that claim 1 requires, in part, carrying out feature (b), which is:

"(b) performing a plasma treatment by irradiating the substrate subjected to the dry etching process with plasma in an atmosphere formed by introducing a mixture of a halogen gas as claimed and O₂ gas wherein the amount of O₂ gas is not greater than 30%"

Applicant asserts that:

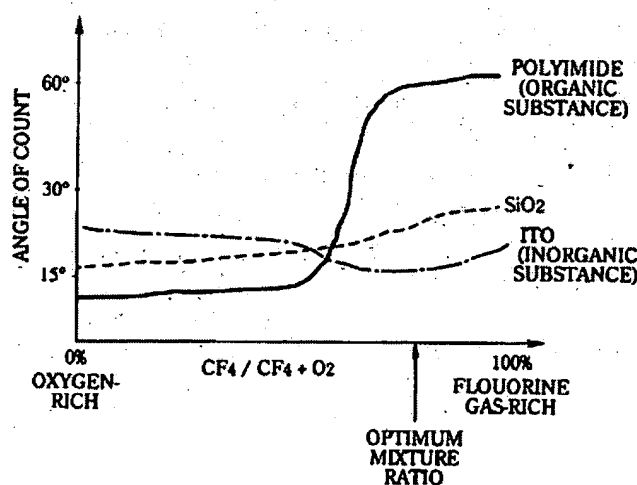
"Seki, et al.'s 4th embodiment (Fig. 9 and [0178]) does not state that the claimed dry etching process is performed prior to the use of CF₄/O₂, and therefore such constitutes neither a description nor a suggestion of feature (b). In this regard, Applicants respectfully submit that Seki, et al.'s Fig. 9 shows that when a gas mixture is used at the optimum ratio, the effect of plasma treatment using fluorine gas is suppressed and the contact angle of polyimide is reduced"

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With regard to the assertion that Seki does not state that the claimed dry etching process is performed prior to the use of CF_4/O_2 , the examiner again notes paragraph [0055] of Seki which states (with emphasis added):

"This invention provides a surface modification method which comprises a first process for performing an oxygen plasma treatment on the substrate whereon the banks are formed, and a second process for performing, consecutively, a fluorine-based gas plasma treatment."

Regarding figure 9 of Seki, the examiner does not understand how applicant arrived at their conclusion. Figure 9 shows that Seki's optimum CF_4/O_2 ratio correlates closely to applicant's claim limitation that requires forming a plasma from a mixture of a halogen gas and O_2 , wherein the amount of O_2 gas is not greater than 30%. Contrary to that which was argued by applicant, figure 9 shows that the contact angle with respect to polyimide, increases with the fluorine treatment.

**FIG.9**

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441.

The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read "Allan Olsen". The signature is stylized with a large, looped "O" and a long, sweeping underline.

Allan Olsen
Primary Examiner
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